

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and the following remarks. Claims 1, 3-4, and 6-26 have been amended. Support for these claims can be found generally throughout the specification. No new matter has been added by these amendments. Claim 2 has been cancelled. After entry of the present amendments. Claims 1 and 3-32 are pending.

The Office Action

The Examiner rejected Claims 1-32 under 35 U.S.C. 102(b) as anticipated by *Wysong* (U.S. Pat. No. 4,206,101), *Wysong* (U.S. Patent 4,215,169), *Welygan et al.* (U.S. Patent 4,631,215) and *Larson et al.* (U.S. Patent 5,641,562). The Examiner also rejected Claims 1-32 under 35 U.S.C. 103(a) as obvious over *Wysong* (U.S. Patent 4,206,101), *Wysong* (U.S. Patent 4,215,169), *Welygan et al.* (U.S. Patent 4,631,215) and *Larson et al.* (U.S. Patent 5,641,562). Applicants respectfully submit that the pending claims are not anticipated by the cited references, or obvious under the cited references.

The Election Requirement

The Examiner stated that the application contains claims directed to the following patentably distinct species of the claimed invention: the instant poly(ethylene oxide) component of the melt blend which includes homopolymers of poly(ethylene oxide) and graft copolymers of poly(ethylene oxide). The Examiner also stated that the Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits

to which the claims shall be restricted if no generic claim is finally held to be allowable. The examiner further stated that currently, claims 1-7, 9-18 and 20-32 are generic, and that the Applicant is required to elect an ultimate species of poly(ethylene oxide) for further prosecution on the merits.

Applicants hereby elect graft copolymers of poly(ethylene oxide) for examination in this application. Claims 1 and 3-32 are drawn to graft copolymers of poly(ethylene oxide).

Claim rejection under 35 U.S.C. §102(b) and 35 U.S.C §103(a)

Claims 1-32 have been rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over, *Wysong* (U.S. Patent 4,206,101), *Wysong* (U.S. Patent 4,215,169), *Welygan et al.* (U.S. Patent 4,631,215) or *Larson et al.* (U.S. Patent 5,641,562).

The Examiner stated that *Wysong* '101 and '169 teach and exemplify films derived from a melt blend of 5 to 20 pbw polyethylene glycol, 100 pbw polyvinyl alcohol, and less than, or equal to, 2 pbw, based on 100 pbw of the polyvinyl alcohol, polyethylene oxide, governed by a molecular weight between about 500,000 and 1,000,000.

The Examiner also stated that *Welygan et al.* exemplifies an extruded article derived from a melt blend of aluminum oxide, polyethylene oxide, polyvinyl alcohol and water. The Examiner further stated that *Larson et al.* teaches films derived from a melt blend

of an elastomeric polymer, and between 0 and 100 wt.% of a water-dispersible polymer, which includes polyethylene oxide, polyvinyl alcohol, and mixtures thereof.

The Examiner stated that each reference, *Wysong '101*, *Wysong '169*, *Welygan et al.* and *Larson et. al.*, anticipates the instantly claimed invention. The Examiner also stated that the polyethylene oxide component of each reference (patentee) is generic, and that this necessarily implies that any polyethylene oxide component, including Applicants' claimed grafted polyethylene oxide, would have been obvious within the scope of the references. The Examiner further stated that one having ordinary skill in the art would have found a fiber, if not taught, obvious from a film.

Applicants respectfully traverse these grounds of rejections for the following reasons. Applicants' invention is drawn to compositions comprising polyvinyl alcohol and a graft copolymer of polyethylene oxide. The *Wysong '101* and *'169* references, do not disclose graft copolymers of polyethylene oxide. Therefore, these references do not anticipate Claims 1 and 3-32 of the present application. Moreover, *Welygan et al.* does not disclose graft copolymers of polyethylene oxide, and therefore, this reference does not anticipate Applicants' Claims 1 and 3-32. In addition, *Larson et al.* does not disclose graft copolymers of polyethylene oxide, and therefore, this reference does not anticipate Applicants' Claims 1 and 3-32.

Moreover, none of the cited references teaches or suggests the use of graft copolymers of polyethylene oxide. The *Wysong '101* and *'169* references disclose blends prepared from polyethylene glycols that rapidly dissolve in cold water. These references do

not teach or suggest the use of graft copolymers of polyethylene oxide. The *Welygan et al.* reference discloses the use of polyethylene oxide in combination with polyvinyl alcohol and aluminum oxide to form a ceramic structure. This reference does not teach or suggest the use of graft copolymers of polyethylene oxide. The *Larson et al.* reference discloses the use of polyethylene oxide as a dispersible polymer component in a film. This reference does not teach or suggest the use of graft copolymers of polyethylene oxide.

Applicants respectfully submit that since none of the cited references teaches or suggests the use of graft copolymers of polyethylene oxide, Claims 1 and 3-32 are not obvious under *Wysong*, '101, *Wysong* '169, *Welygan, et al.*, or *Larson et al.* Applicants further submit that Claims 1 and 3-32 are patentable in view of the cited art. Therefore, Applicants respectfully requests reconsideration and withdrawal of the above rejections.

Marked up version of re-written claims

Pursuant to 37 CFR §1.121(c)(1)(ii), another version of the rewritten claims marked up to show all the changes relative to the previous version of the claims is now set forth with deleted text shown in [brackets] and added text shown in underlining:

1. (Amended) A composition comprising a [homogeneous] melt blend of a poly(vinyl alcohol) and a graft copolymer of poly(ethylene oxide), the blend having improved melt processability and mechanical properties without the addition of plasticizers.

3. (Amended) The composition of Claim 1, wherein the graft copolymer of poly(ethylene oxide) comprises [a graft copolymer of] poly(ethylene oxide) and at least one vinyl monomer.

4. (Amended) The composition of Claim 1, wherein the graft copolymer of poly(ethylene oxide) comprises [a graft copolymer of a homopolymer of] poly(ethylene oxide) and at least one polar vinyl monomer.

6. (Amended) The composition of Claim 1, wherein the graft copolymer of poly(ethylene oxide) comprises [a graft copolymer of] poly(ethylene oxide) and from about 1 to about 30 weight percent of a polar vinyl monomer, a polar vinyl oligomer, a polar vinyl polymer or a combination thereof.

7. (Amended) The composition of Claim 1, wherein the graft copolymer of poly(ethylene oxide) comprises [a graft copolymer of] poly(ethylene oxide) and 2-hydroxyethyl methacrylate, poly(ethylene glycol) methacrylate or derivatives or analogs of poly(ethylene glycol) methacrylate.

8. (Amended) The composition of Claim 1, wherein the graft copolymer of poly(ethylene oxide) comprises [a graft copolymer of] poly(ethylene oxide) and 2-hydroxyethyl methacrylate.

9. (Amended) The composition of Claim 1, wherein the graft copolymer of poly(ethylene oxide) is a thermoplastic[,] and water-soluble [poly(ethylene oxide)], and wherein the poly(vinyl alcohol) is a thermoplastic[,] and water-soluble [poly(vinyl alcohol)], and wherein the composition is thermoplastic and water-soluble without the addition of plasticizers.

10. (Amended) The composition of Claim 1, wherein the melt blend comprises from about 1 weight percent to about 99 weight percent of the graft copolymer of poly(ethylene oxide) and from about 1 weight percent to about 99 weight percent of poly(vinyl alcohol).

11. (Amended) The composition of Claim 1, wherein the melt blend comprises from about 10 weight percent to about 90 weight percent of the graft copolymer of poly(ethylene oxide) and from about 10 weight percent to about 90 weight percent of poly(vinyl alcohol).

12. (Amended) The composition of Claim 1, wherein the melt blend comprises from about 10 weight percent to about 50 weight percent of the graft copolymer of poly(ethylene oxide) and from about 50 weight percent to about 90 weight percent of poly(vinyl alcohol) compatible blend.

13. (Amended) A thermoplastic, water-soluble composition comprising a compatible melt blend of a poly(vinyl alcohol) and [grafted] a graft copolymer of poly(ethylene oxide).

14. (Amended) The composition of Claim 13, wherein the [grafted] graft copolymer of poly(ethylene oxide) is a [graft] copolymer of poly(ethylene oxide) and at least one vinyl monomer.

15. (Amended) The composition of Claim 13, wherein the [grafted] graft copolymer of poly(ethylene oxide) is a [graft] copolymer of a homopolymer of poly(ethylene oxide) and at least one polar vinyl monomer.

16. (Amended) The composition of Claim 13, wherein the [grafted] graft copolymer of poly(ethylene oxide) is a [graft] copolymer of poly(ethylene oxide) and at least one polar vinyl monomer selected from 2-hydroxyethyl methacrylate, poly(ethylene glycol) methacrylates, poly(ethylene glycol) ethyl ether methacrylates, poly(ethylene glycol) acrylates, poly(ethylene glycol) ethyl ether acrylate, poly(ethylene glycol) methacrylates with terminal hydroxyl groups, acrylic acid, maleic anhydride, itaconic acid, sodium acrylate, 3-hydroxypropyl methacrylate, acrylamide, glycidyl methacrylate, 2-bromoethyl acrylate, carboxyethyl acrylate, methacrylic acid, 2-chloroacrylonitrile, 4-chlorophenyl acrylate, 2-cyanoethyl acrylate, glycidyl acrylate, 4-nitrophenyl acrylate, pentabromophenyl acrylate, poly(propylene glycol) methacrylate, poly(propylene glycol) acrylate, 2-propene-1-sulfonic acid and its sodium salt, sulfo ethyl methacrylate, 3-sulfopropyl methacrylate, and 3-sulfopropyl acrylate.

17. (Amended) The composition of Claim 13, wherein the graft copolymer of poly(ethylene oxide) comprises a [graft] copolymer of poly(ethylene oxide) and from about 1 to about 30 weight percent of polar vinyl monomer, polar vinyl oligomer, polar vinyl polymer or a combination thereof.

18. (Amended) The composition of Claim 13, wherein the [grafted] graft copolymer of poly(ethylene oxide) comprises a [graft] copolymer of poly(ethylene oxide) and a monomer selected from 2-hydroxyethyl methacrylate, poly(ethylene glycol) methacrylate and derivatives and analogs of poly(ethylene glycol) methacrylate.

19. (Amended) The composition of Claim 13, wherein the graft copolymer of poly(ethylene oxide) comprises a [graft] copolymer of poly(ethylene oxide) and 2-hydroxyethyl methacrylate.

20. (Amended) The composition of Claim 13, wherein the [grafted] graft copolymer of poly(ethylene oxide) is a thermoplastic[,] and water-soluble [grafted poly(ethylene oxide)], and wherein the poly(vinyl alcohol) is a thermoplastic[,] and water-soluble [poly(vinyl alcohol)].

21. (Amended) The composition of Claim 13, wherein the melt blend comprises from about 1 weight percent to about 99 weight percent of [grafted] the graft copolymer of poly(ethylene oxide) and from about 1 weight percent to about 99 weight percent of the poly(vinyl alcohol).

22. (Amended) The composition of Claim 13, wherein the melt blend comprises from about 10 weight percent to about 90 weight percent of [grafted] the graft copolymer of poly(ethylene oxide) and from about 10 weight percent to about 90 weight percent of the poly(vinyl alcohol).

23. (Amended) The composition of Claim 13, wherein the composition comprises from about 10 weight percent to about 50 weight percent of [grafted] the graft copolymer of poly(ethylene oxide) and from about 50 weight percent to about 90 weight percent of the poly(vinyl alcohol).

24. (Amended) A thermoplastic, water-soluble composition consisting essentially of a melt blend of a poly(vinyl alcohol) and a [grafted] graft copolymer of poly(ethylene oxide).

25. (Amended) The composition of Claim 24, wherein the [grafted] graft copolymer of poly(ethylene oxide) is a [grafted] copolymer poly(ethylene oxide) and at least one polar, vinyl monomer.

26. (Amended) The composition of Claim 24, wherein the [grafted] graft copolymer of poly(ethylene oxide) comprises a [graft] copolymer of poly(ethylene oxide) and a monomer selected from 2-hydroxyethyl methacrylate, poly(ethylene glycol) methacrylate and derivatives and analogs of poly(ethylene glycol) methacrylate.

Response to First Office Action

Inventor: Wang et al.

Title: Blends of Poly(Vinyl Alcohol) and Poly(Ethylene Oxide) and Articles Made Therewith

Filed: June 19, 2000

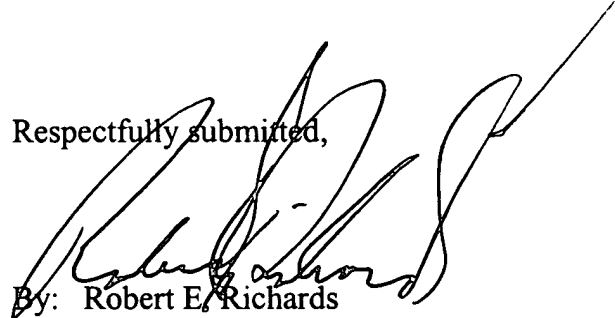
CONCLUSION

The foregoing is a complete response to the Office Action October 2, 2001. Applicants respectfully submit that Claims 1 and 3-32 are patentable. Early and favorable consideration is solicited.

The present amendment is accompanied by a one-month extension of time, and a check in the amount of \$110.00. No additional fees are believed due; however, the Commissioner is hereby authorized to charge any deficiencies which may be required, or credit any over payment, to deposit account No. 11-0855.

If the Examiner believes that there are other issues that can be resolved by a telephone interview, or that there are any informalities that remain in the application, which may be corrected by the Examiner's amendment, a telephone call to the undersigned attorney at (404) 815-6500 is respectfully solicited.

Respectfully submitted,


By: Robert E. Richards
Reg. No. 29,105

KILPATRICK STOCKTON LLP
1100 Peachtree Street, Suite 2800
Atlanta, Georgia 30309
Tel: (404) 815-6500
Fax: (404) 815-6555
Our Docket No. 11302-0600 (44040-228250)
KC# 13,404